
COMPUTER SCIENCE 3753

Assignment #2

Points: 40

Weight: 2%

Due: Friday, Sept. 14, 2018 at 11:55 pm in BlackBoard

Note: Late assignment will not be accepted without instructor's pre-approval.

Hand in a zipfile **yourNmae-hmwk02.zip** that contains one Jupyter notebook with appropriate code cell and markdown (comment) cells, python scripts, and data files that are needed to solve the following questions.

For each of following questions, the Jupyter notebook should contain one or more code cell that either directly solves the question or runs a python script file to solve the question. For this homework, you must use only the basic Python (that is do not use scipy, numpy, or pandas package). You need to demonstrate your solutions with several test examples.

This homework must be completed individually.

1. [10] Provide an implementation for zip function using list comprehensions. You should not use the Python built-in zip function.

```
zip([1, 2, 3], ["a", "b", "c"])
Out[: [(1, "a"), (2, "b"), (3, "c")]
```

2. [10] Write a function triplets that takes a number n as argument and returns a list of triplets such that the sum of the first two elements of the triplet equals the third element using numbers below n. Please note that (a, b, c) and (b, a, c) represent the same triplet.

```
triplets(5)
Out[: [(1, 1, 2), (1, 2, 3), (1, 3, 4), (2, 2, 4)]
```

3. [10] Write a function parse_csv to parse CSV (comma separated values) files and support any delimiter and comments.

```
%cat a.txt
# elements are separated by ! and comment indicator is #
a!b!c
1!2!3
2!3!4
3!4!5
```

```
parse('a.txt', '!', '#')
Out[: [['a', 'b', 'c'], ['1', '2', '3'],
       ['2', '3', '4'], ['3', '4', '5']]
```

4. [10] Write a function sortlines that takes a filename as an argument and prints all the lines in a sorted order by the number of words in the lines, lines with less words should be printed before lines with more words.

```
sortlines('she.txt')
```

```
She Sells Seashells On The Seashore;  
So If She Sells Seashells On The Seashore ,  
I'm Sure That The Shells Are Seashore Shells.  
The Shells That She Sells Are Seashells I'm Sure.
```